# FORMULATION AND EVALUATION OF NANOSTRUCTURED LIPID CARRIERS BASED CAPSULE

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**ABSTRACT**

The objective of this investigation was to formulate an ideal nanostructured lipid carrier (NLC) for glibenclamide in oral capsules. Employing factorial design, the NLC formulation was achieved through high-pressure homogenization using Design-Expert® software, optimized using a $3^2$-factor experimental design and response surface analysis. Comprehensive analyses were conducted to characterize NLCs and determine the optimal formulation. Rigorous evaluations, including drug content, *in vitro* diffusion and stability studies, were performed. Safety assessments, efficacy studies and optimization led to the identification of an optimal NLC formulation with specific lipid and surfactant percentages, resulting in a desirable particle size (nm) and a robust zeta potential indicative of strong physical stability.